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ABSTRACT

A study examined whether students, when removed from a video-based context, were able to transfer the writing-related objectives taught within a curriculum to similar writing tasks. Subjects were 24 sixth-grade, learning disabled students enrolled in a resource room language arts program who participated during the first year of a project. Students participated in a news reporting curriculum for 9 weeks. Group pre- and posttests focusing on writing and comprehension were also administered. Although both video and orally presented prompts produced posttest gains in the number of students who exhibited an increase in the number of categories found in their writing, substantially more students gained in the written/orally presented topic. It appears that the curriculum positively influenced writing when removed from the video context. Students also made gains in comprehending explicit as well as implicit information in written/orally presented news stories, while comprehension of implicit and explicit information in video/broadcast news stories did not change significantly. Results also indicated that students were better able to identify correct information at the end of the 9-week curriculum as well as better able both to identify incorrect information and replace it with appropriate material. These results are consistent with previous results using video-based anchors in literacy instruction as well as in other content areas. (Two figures and four tables of data are included. Seventeen references are attached.) (MG)

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EFFECTS OF MULTIMEDIA TO ENHANCE WRITING ABILITY[1]

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EFFECTS OF MULTIMEDIA TO ENHANCE WRITING ABILITY

Developing students' writing abilities is an ongoing concern, and has recently received added impetus. For example, Secretary of Education Cavazos has noted that

> Reading and writing are the basic tools of learning, the crux of the academic enterprise. Without solid literacy skills we can never expect to see improvements in math or science, history or geography. (L. Cavazos, The Tennessean, 1/8/90, p. A1)

Yet assessments of writing progress and writing abilities continue to show that many students have difficulty with writing coherent and cohesive products. Many students have difficulty with skills such as focusing on central issues and main ideas within their writing, and do not adequately take into account such aspects of writing as audience awareness and point of view. All of the above factors, however, have long been stressed as necessary for students to consider during the writing process (see Ruth & Murphy, 1988, for a discussion of such aspects, especially as related to assessments and school-based writing and Applebee, 1986, for a discussion of national writing assessment results).

This paper describes a curriculum that has as its goal the enhancement of students' writing abilities. The initial results reported here are from pilot testing conducted during the first year of this two-year project, and are specific to the news/reporting genre on which the curriculum is based. We also present results of measures designed to examine whether students were able to transfer the writing-related objectives taught within the curriculum to similar writing tasks when removed from a video-based context.

Description of the Project

The foundation for this project is work that has shown the benefits of video-based macrocontexts as anchors for students' learning. This "anchored instruction" has previously

been shown to be effective across a variety of subject areas, including mathematical word-problem solving, social studies, science, and literacy (e.g., vocabulary development, characterization, and story elements such as plot, setting information, and so on). This work has been described by Bransford, Sherwood, Hasselbring, Kinzer, & Williams, (in press); Sherwood, Kinzer, Bransford, & Franks, (1987); Kinzer, (1987); Risko, Kinzer, Goodman, McLarty, Dupree, & Martin, (1989). The provision of a video-based anchor provides a reference point for the student as well as a shared experience for the teacher and student. This shared knowledge is used during instruction by teachers to clarify points and to provide examples of targeted concepts (McLarty et al., 1989), and by students during questioning related to attempts at clarifying new information (Rowe, 1989).

The curriculum developed for the project reported here included video-based anchors chosen for use within lessons to teach elements of writing that included point of view, main idea, separating relevant from irrelevant information, and writing story leads, bodies, and endings. The overall instructional framework was a news-reporter algorithm, chosen because of its suitability for teaching the components noted above. For example, both televised and printed news reports are categorized into sections such as Style, Sports, American Scene, and so on. This categorization requires that stories take into account different points of view and reader expectations, depending on the section in which stories are placed. News reporting also requires a focus on central themes and supporting details, and provides the *Who, What, When, Where, Why* and *How* structure that facilitates notetaking, outlining, brainstorming and revising activities. Finally, the news format allowed us to use video of national network news reporting (courtesy of NBC News). The high-quality video footage that was part of the news reports serve as "jumping off" points for students to expand their writing into "follow-up" stories, and provide a model of the

reporting format using authentic topics. An initial interest inventory was performed on a variety of news segments. Students viewed 20 news reports and rated their interest in seeing more about the respective topic on a Likert rating scale. Fourteen topics were chosen for use. These were transferred to a videodisc for use within the curriculum.

From a cognitive perspective, the development of writing competence requires mastery in the execution of a number of complex mental processes. Flower and Hayes (1980) note that the processes of planning, transcribing, and revising comprise basic components that alternately compete for the writer's attention. These components interact and also include a variety of subcomponents. While mature writers compensate for the demands within each step of the writing process by allocating attention to specific subcomponents as necessary (for example, by attending to provision of supporting details when appropriate) or by employing strategies that may well be automatic in fluent writing, Scardamalia and Bereiter (1986) suggest that less experienced writers often react to the demands of the writing task by simply transforming conversation into writing. Since writing must compensate for differences that result from the absence of prosodic clues as well as a number of other aspects that are present in conversations (see for example, papers in Tannen, 1982; Chafe & Danielewics, 1987), the written products of novices tend to reflect organization patterns and a lack of audience awareness that result in inappropriate or missing information, making the written products difficult to understand.

In designing our curriculum, we provided novices with instruction that facilitated overt use of a clear organizational structure as well as a need for audience awareness through the journalistic framework described earlier. In order to develop improved planning abilities, students practiced identifying information that corresponded to the traditional journalistic questions (e.g., who, what, where, etc.). Furthermore, opportunities

to create a class newspaper helped to encourage purposeful writing that was geared to a specific audience, with newspaper sections that required different points of view on similar stories.

The curriculum also closely interrelates reading and writing. Current literacy-based research emphasizes the importance of teaching writing as a skill interrelated with reading (Tierney & Pearson, 1983; McGinley & Tierney, 1989; Tierney, 1985). From this perspective, literacy is best achieved by providing integrated instruction. The news media theme provides many opportunities to take advantage of the reading/writing relationship. For example, students viewed video news-segments, read stories based on these segments, and eventually gained experience in composing their own news stories. In addition, practice in main idea identification was directly instructed through both the video and written news stories.

Specific Aspects of the Curriculum

Students were initially presented with general knowledge about the news media. In these introductory lessons, students gained an understanding of topics such as the history of print and broadcast news, about the importance and purposes of the newsmedia, and about jobs in both print and broadcast news. This was done through meaning-based activities (for example, the class brainstormed how information might have been transmitted at various time-periods in history, subscribed to a local newspaper and discussed daily stories, and so on), and through a visit to the class by a well-known, local television newsreporter. Thus, the macrocontext of news and news reporting was established before specific writing instruction was begun. This paralleled the "develop expertise" aspect that has been advanced as a principle of anchored instruction (McLarty et al., 1989). This

initial phase of the curriculum is followed by instruction that explicitly focused on teaching reading and writing within a video news-context.

Two major components comprise the curriculum (see Figure 2). In the reading component, students first learn to identify the journalistic question categories, then develop skill in comprehension monitoring, and finally analyze stories written from different points of view. After the targeted skill is introduced through teacher directed instruction, students choose from a variety of news segments and practice identifying information that fits into the question categories.

Students identify story information (who, what, where, etc.), decide on accurate and inaccurate information relative to the video-anchor, and practice determining point of view by choosing and writing stories, based on a video anchor, relative to the various sections of the paper. For example, video content on Janet Evans, the Olympic medal-winning swimmer, includes information on her strict training regimen. Stories can be written that are either positive (by working so hard she receives numerous benefits), negative (by working so hard, she misses out on many activities normal for a teenager), or neutral. Similarly, this story can appear in the sports section (thus emphasizing her sport-related activities and accomplishments) or in the human interest section (emphasizing her life as a teenager who has an unusual lifestyle). Providing students with the ability to revisit information in the video as often as necessary allows them to find information at their own pace, and to include details that might otherwise be forgotten and be too laborious to include in revisions. Written news stories that parallel the video content provide additional experiences and practice in this area.

After proficiency has been developed in the reading component, students enter the closely-related writing component. Here, they are provided with practice in using and

linking story parts (headlines/main idea, supporting details, etc.), in writing and using story leads (e.g., summary, question, quotation, and dramatic leads) and endings (e.g., summary, opinion, and question endings), and in writing follow-up stories based on the video anchors. They then write their own stories, for inclusion into the class newspaper and/or the computer. Writing the story into the computer allows the story to be presented on the screen, "read" through hyperanimator software, and/or printed (complete with the student's byline) for distribution or to take home.

Subjects

Twenty-four learning disabled students enrolled in a resource room language arts program participated in Year 1 of this project. These sixth grade students received their primary language arts instruction in this special education setting. All of the subjects had been classified by a multidisciplinary team as requiring this placement. Group administered achievement tests indicated that these students were functioning one to two grade levels below grade level in reading.

Procedures

Students participated in the previously-described news reporting curriculum for nine weeks. The curriculum was presented during a 40-minute period, twice per week. Group administered pre and posttests, focusing on writing and comprehension, were administered during this time period. All written test instructions and content were read aloud to the students.

Students completed four comprehension tests (two pretests, two posttests). In the video comprehension pre and posttests, students watched a 2-3 minute video news-segment and completed a multiple choice test on its content. In the oral comprehension pre and posttests, students listened to the teacher read a transcript of a 2-3 minute news segment.

The transcript was written to alleviate any shortcomings due to the deletion of the video that was originally part of the broadcast news report. The multiple choice tests were comprised of 10, three-alternative, comprehension questions. Six questions evaluated responses to explicit story information; the other four questions focused on implicit information.

Comprehension was also evaluated in two error detection tests. After viewing a 2-minute video news-segment, students were given 18 true/false questions. Nine of these questions were false. Students were asked (1) to identify items that included false information, and (2) to change the false information to true, or correct, information.

Four writing samples (two pre, two post) were also collected. Students wrote pre and posttest stories based on a video-presented prompt, and pre and posttest stories based on an orally-presented prompt. The prompts were chosen to reflect similar amounts of background experience on the part of the students, and to be relatively equal in terms of interest.

Results

A MANOVA was conducted on the error detection pre and posttest results, across Hits (appropriate student responses), False Alarms (false information incorrectly identified as true), and a composite measure (D-Prime). The main effect for timing (pre/posttest) was significant ($F_{(3,15)} = 11.21$, $p < 0.01$). Separate ANOVAs revealed significant differences between the pre and posttest results in Hits ($F_{(1,17)} = 9.54$, $p < 0.01$), in False Alarms ($F_{(1,17)} = 25.25$, $p < 0.01$), and in the D-Prime analysis ($F_{(1,17)} = 25.02$, $p < 0.01$). Table 1 presents cell means and standard deviations for the error detection results.

A MANOVA was also performed to examine students' ability to identify and to correct false information. Students' responses were scored by both a lenient and a strict

criterion. In the lenient criterion, students had only to identify incorrect information. In the strict criterion, students additionally had to appropriately "fix" the item in order to make it true. There was a significant main effect for timing (pre and posttest, $F_{(2,16)} = 24.79$, $p < 0.01$). Additional ANOVAs indicated significant differences for timing in the lenient criterion ($F_{(1,17)} = 25.67$, $p < 0.01$) and in the strict criterion ($F_{(1,17)} = 52.18$, $p < 0.01$) analysis. Cell means and standard deviations for the identification of false items appear in Table 2.

ANOVAs (Sex) x (Timing) x (Type of Item) were conducted to examine the video and oral comprehension results. No significant main effects were found in the video comprehension data. Although the main effect for timing approached significance ($F_{(1,16)} = 3.65$, $p < 0.07$), no further analysis was performed. Comprehension of the orally-presented news story, however, showed significant main effects for type of item ($F_{(1,16)} = 6.61$, $p < 0.05$) and timing ($F_{(1,16)} = 13.93$, $p < 0.01$). Cell means and standard deviations for the video and oral comprehension tests appear in Tables 3 and 4, respectively.

Figure 1 presents data regarding the number of categories (e.g., who, what, where, headline, closing, etc.) that were found in students' writing. Figure 1 shows the percentage of students who increased, decreased, or did not change the number of categories found in their pre and post-writing tests, across video and orally-presented prompts. Seventy-one percent of the children increased the number of appropriate-information categories in writing based on the oral prompt. Forty-seven percent increased the number of categories present in their writing when responding to the video prompt.

Discussion

The measures used attempted to answer the questions

1. Would instruction relying on a video anchor only impact students' performance on video-related writing tasks, or would it positively affect writing based on more traditional, written and oral prompts?
2. Would students' writing exhibit more features related to main ideas and *Who, What, When, Where, Why* and *How* questions, as well as lead-ins and appropriate summaries/endings following the nine-week unit?
3. Would students be able to more accurately comprehend both implicit and explicit features in news stories after training in the journalistic question categories?

Although both video and orally-presented prompts produced posttest gains in number of students who exhibited an increase in the number of categories found in their writing (Figure 1), substantially more students gained in the written/orally-presented topic. Thus, it appears that the curriculum positively influences writing when removed from the video context. Students also made gains in comprehending explicit (literal) as well as implicit (inferential) information in written/orally-presented news stories (Table 4), while comprehension of implicit and explicit information in video, broadcast news stories did not change significantly (Table 3). This further supports possible positive effects of the video-based curriculum when students are required to write based on traditional prompts. Results also indicate that students were better able to identify correct information at the end of the nine-week curriculum (Table 1) as well as being better able to both identify incorrect information and replace it with appropriate material (Table 2). This aspect relates to including appropriate information in written products, as well as to critical thinking skills.

Although the results reported here are preliminary in nature, they indicate that a video-anchored curriculum can positively affect students' writing in the news genre. These results are consistent with previous results using video-based anchors in literacy instruction, as well as in other content areas.

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Table 1: Error Detection Results*#

Recognition Measure	Pretest	Posttest	Mean
Hits	87.26[1] (12.84)	96.53[1] (6.41)	91.89 (11.05)
False Alarms	41.42[2] (16.73)	16.84[2] (14.05)	29.13 (19.68)
D-Prime	1.83[3] (1.03)	3.74[3] (1.26)	2.79 (1.49)

* Percentages; standard deviations appear in parentheses.
# n = 18
Means within rows that differ significantly shared superscripted numbers.

Table 2: Identification of False Items*#

Performance Criterion	Pretest	Posttest	Mean
Lenient Criterion	52.60[1] (14.80)	74.40[1] (12.60)	63.70 (17.60)
Strict Criterion	36.30[2] (19.50)	70.50[2] (14.30)	53.40 (24.20)

* Percentages; standard deviations appear in parentheses.
# n = 18
Means within rows that differ significantly shared superscripted numbers.

Table 3: Video Comprehension Results*#

Type of Item	Pretest	Posttest	Mean
Explicit	68.39 (22.06)	75.67 (9.04)	72.03 (17.02)
Implicit	65.28 (19.44)	73.06 (20.04)	69.17 (19.85)
Mean	66.83 (20.55)	74.36 (15.38)	70.60 (18.42)

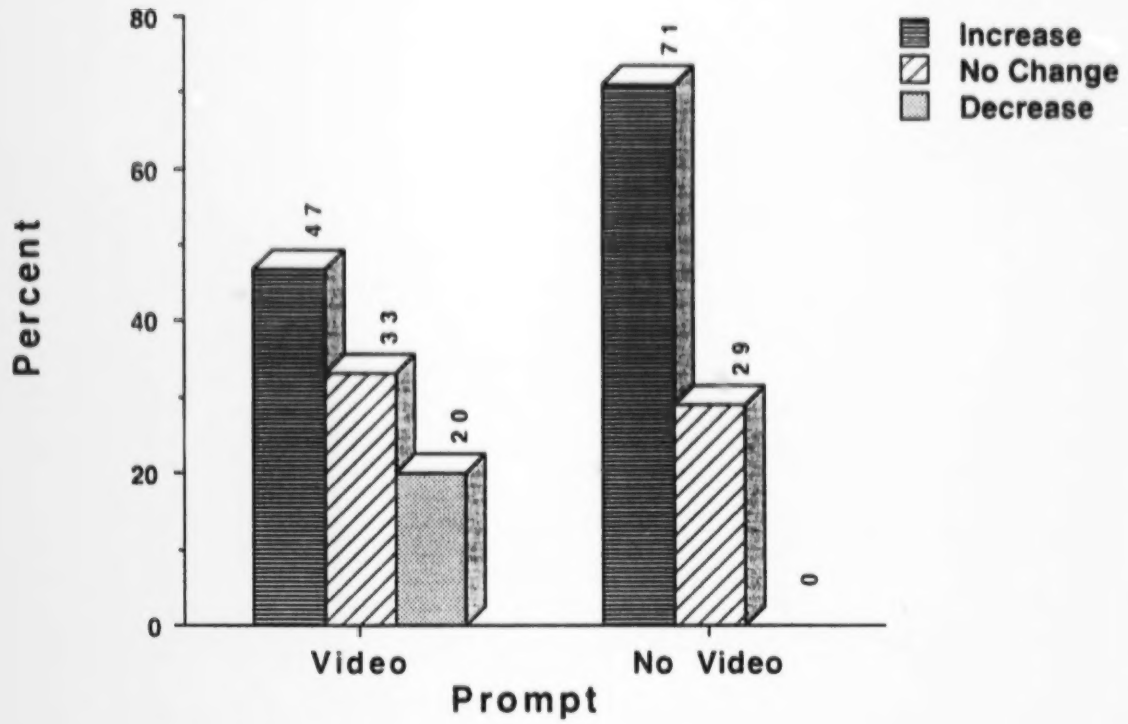
* Percentages; standard deviations appear in parentheses.
# n = 19

Table 4: Oral Comprehension Results*#

Type of Item	Pretest	Posttest	Mean
Explicit	61.11[1] (29.48)	77.33[1] (18.88)	69.22 (25.75)
Implicit	68.89[2] (27.63)	86.78[2] (19.40)	77.83 (25.22)
Mean	65.00[3] (28.44)	82.06[3] (19.46)	75.53 (25.67)

* Percentages; standard deviations appear in parentheses.
# n = 19
Means within rows that differ significantly shared superscripted numbers.

Figure 1: Change in Students' Writing
(Categories Present, Pretest to Posttest)



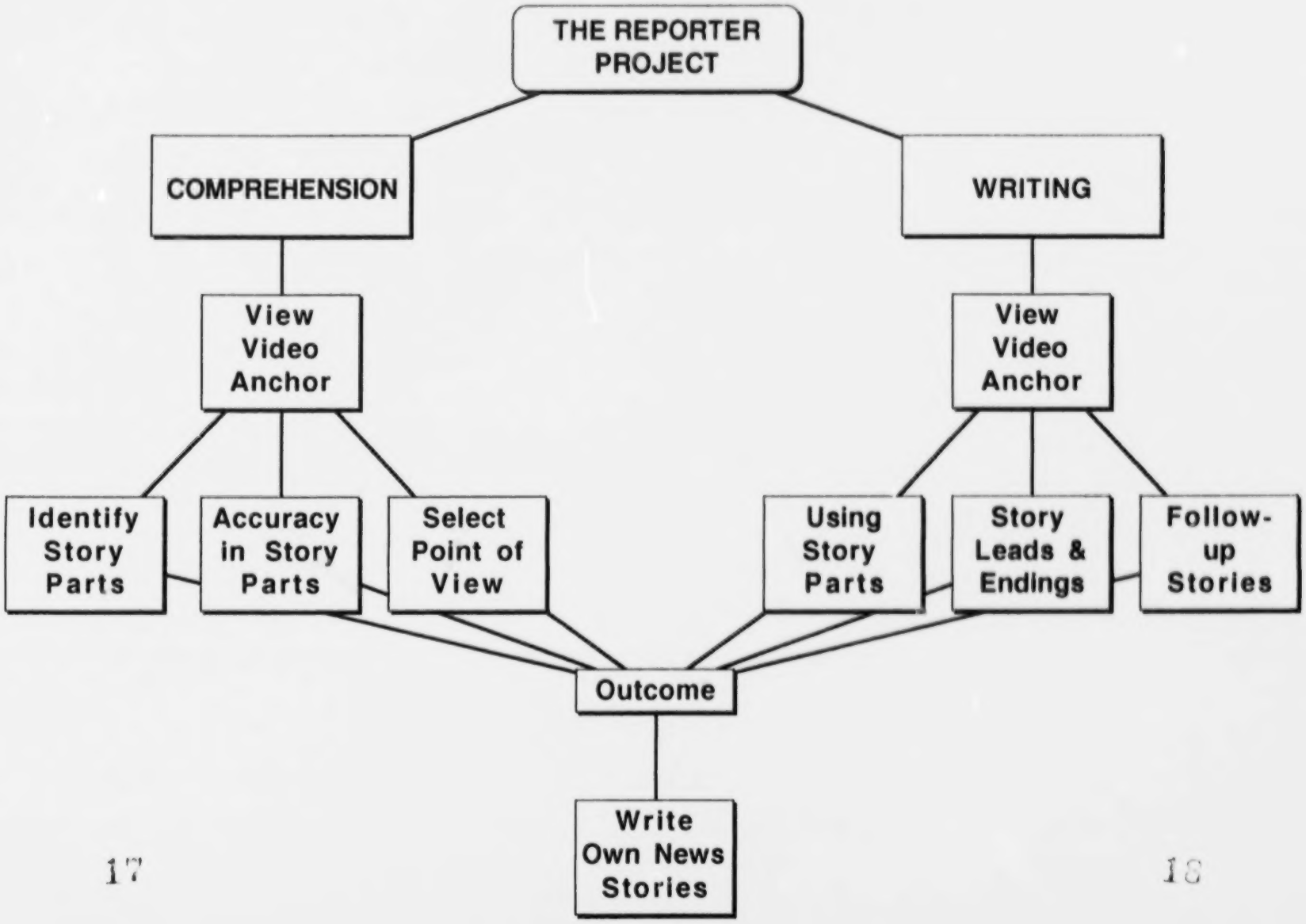


FIGURE 2: PROJECT OVERVIEW